GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 2, 1892.

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Quercus densiflora.

THE Tan Bark Oak, as Quercus densiflora is usually called in California, is morphologically the most remarkable of all the North American Oaks, and in some respects is almost as much of a Chestnut as it is of an Oak, although its fruit is a true acorn. The inflorescence resembles that of the Chestnut, and consists of a cluster of long, erect aments, pistillate at the base and staminate above, or entirely staminate, and particularly conspicuous from the slender filaments many times longer than the minute anthers. From those of the Chestnut, however, the female flowers differ in being solitary, and not clustered in the involucre which develops into the cup of the acorn. This tree is particularly interesting, therefore, as showing the near relationship between the Oak and the Chestnut, while to the student of plant-archæology and of the laws which govern the distribution of forms of plant-life over the surface of the earth, it is of special interest. No other tree in America or Europe resembles it, but in eastern and southern Asia there is a whole group of Oaks so similar in the structure of their flowers to this solitary inhabitant of the New World that it is possible to suppose that the Californian and the Asiatic trees possessed, not very long ago, a common ancestor from which the two lines, slightly differentiated in structure and now widely separated geographically, have come down. The relationship is all the more remarkable, because it is in the flora of eastern America, and not in that of the western part of this continent, that we are accustomed to find eastern Asiatic types, and the peculiar trees of our Pacific forests have few prototypes on the opposite shores of that ocean.

The Tan Bark Oak is one of the handsomest and most useful Oaks of North America. Large specimens, which are sometimes a hundred feet tall, develop a broadly conic to oblong head of unusual regularity and beauty. Under the shadow or on the borders of the forests of Redwood, the favorite situation of this tree, it is forced upward in search of light, and then forms a more or less spire-like top, but in open situations where light and space abound, the branches spread out horizontally and form the broad head which makes some individuals of this tree as handsome and symmetrical almost as it is possible for any Oak-tree to become. The leaves are persistent through the year, large, leathery, and lustrous, in shape and size not inferior to those of a vigorous Chestnut-tree, but much thicker, and while young covered on the lower surface with pale tomentum which, in disappearing, leaves them pale and smooth. Like all California Oaks, individuals of Quercus densiflora differ remarkably when subjected to different conditions of climate and soil. Sometimes they are tall and stately trees, and sometimes little bushes with slender stems only a few feet high. Sometimes the leaves are six or seven inches long, sharply and boldly toothed, and very thick; on other individuals they are thin, entire or nearly so, and barely an inch and a half long. The fruit, however, with its beautiful shallow cups, silky-tomentose on the inner surface and covered with long linear spreading and recurved scales, does not vary except in size, so that when the trees are in flower or are bearing fruit, it is easy to distinguish them in spite of the uncertain characters afforded by the foliage.

The wood of the Tan Bark Oak is hard and heavy; it is too porous, however, for casks, and, like that of all the California Oaks, is too brittle to be of much use for the purposes for which Oak-timber is mostly esteemed, although it makes good fuel. The great value of the tree is in the character of its bark; this is extremely rich in tannin, and leather made from the wood is of excellent quality. The bark of no other tree of the Pacific coast is so esteemed by tanners, and for years its systematic destruction has been going on in all the region it inhabits. This, fortunately, is of considerable extent, as the Tan Bark Oak is scattered over the coast-ranges from the valley of the Yumqua River, in Oregon, to the Santa Lucia Mountains, in southern California. Unlike some of our eastern Oaks, however, it never forms a large part of the forest, and although it was by no means a rare tree thirty years ago, it was nowhere very abundant. Like other Oaks, it reproduces itself freely if fire and browsing animals do not destroy the young plants too often, but natural reproduction is not keeping pace with the annual destruction of the old trees, and unless conditions of forest-management in California are radically changed, in the course of a few years the Tan Bark Oak, like several other California trees, must become extremely rare, and California tanners will have to depend on the Hemlock-forests of the far north, or on the bark of Australian Acacia-trees, raised in the south, to supply their vats. This is a state of affairs which they should not contemplate with equanimity, as it will mean that they will not be able to compete advantageously with the product of eastern tanneries.

The illustration on page 523 of this issue displays a fine specimen of Quercus densiflora, grown on the borders of the forest, in the neighborhood of the Bay of San Francisco. For the photograph from which it has been made, our thanks are extended to Mrs. T. S. Brandegee, of San Francisco, who kindly furnished it for publication.

The White Mountain Forests.

IN the very first number of the first volume of this journal Francis Parkman made a plea for the preservation of the forests of the White Mountains because of their importance as elements of the scenery which makes that region so attractive to summer tourists, and so profitable, therefore, to the state of New Hampshire. This value is just as real and tangible as is the modifying power of a tree-covered mountain-slope over the agriculture and manufactures and general health of the people who live in the plains below and receive their water from fountains above. It is a value which can be estimated in dollars and cents as truly as can the wood-products which pass into economic

use through the saw-mills. The sweeping away of these forests means irreparable loss to the people of New Hampshire, and the desolation of its scenery will bring more serious impoverishment to the state than the drying up of its water-sources and the extinction of its timber-supply.

Since these woodlands belong to private individuals there is no legal means for arresting the destruction of the mountain forests and the calamities which will surely follow. The only way in which this scenery and the revenue which comes to the state from it can be perpetuated seems to be some reassertion by the state through legislative enactment of its original control over these forests. We are well aware of the obstacles in the way of a proceeding which appears so unusual, although founded on principles which are accepted without question as the basis of many other laws and customs. We do not assume, therefore, to urge upon the people of New Hampshire the adoption of this policy, but we are sincerely gratified to learn that a movement in favor of this exercise of the right of eminent domain has been started in New Hampshire. This makes a definite issue, a specific question to which there is an affirmative and negative side. There is no dispute about the present facts of the case. If there is no check put upon the forest-destruction in that state, the White Mountain region as a summer resort is doomed more certainly than are the manufacturing interests along the Merrimac. It is high time, therefore, that the people of New Hampshire should face the situation, and make up their minds what to do about it.

Mr. J. B. Harrison, the Secretary of the Forest Commission, is in the field, and has agreed to speak anywhere in the state where a meeting can be arranged. All the intelligence of New Hampshire ought to be enlisted in a discussion of such moment. There is no village or school district in the state which would not find it profitable to organize a meeting to consider the responsibility of the people of the state for the forests of the state. Every newspaper should help to kindle popular interest in the subject. Great changes are in progress, and wise men will adjust themselves to coming conditions. If, as it would seem from articles which have recently appeared in New England papers, the hotel-keepers and owners of factories—that is, the men most immediately concerned in this movement—are apathetic, it is time that the public spirit of the whole people should be aroused. Nothing but good can possibly come from a clear presentation of the truth and a dispassionate argument upon the merits of the proposed policy.

Grottoes in France.

AT a reunion of the Fine Arts societies of the various departments of France, held in Paris during the past summer, Monsieur de Montaiglon spoke of those grottoes built with shells and irregular ornamental stones, which were so much in vogue for the ornamentation of gardens from the beginning of the sixteenth to the end of the eighteenth century, and the humble successors of which are found in the rockeries of the modern garden. He cited especially the great grotto of the palace at Fontainebleau, made in the time of François I., those which Palissy erected for the Duc de Montmorenci, and which, if ever finished, were probably transported, the one to the Château d'Ecouen, destroyed in the French Revolution, and the other to Chantilly; the one which was built in the Tuileries gardens, in Paris, and the one at the Château d'Anet, the materials of which must have been very diverse and valuable, as when this place was likewise destroyed during the Revolution, they were preserved and formed the beginning of the national Museum of Natural History.

Furthermore, among historical grottoes, the speaker named one constructed by the Cardinal of Lorraine at the Château de Meudon, which was removed by the son of Louis XIV. to make room for the construction of a new building; those at St. Germain belonging to the palace built by Henry IV.; the one near the Menagerie at Versailles, and, also at Versailles, the one called the "Baths of Thetis," constructed, it is said, to receive the groups which afterward were used to ornament the "Baths of Apollo"; and those connected with the private apartments of the king, of Mademoiselle de La Vallière and of Madame de Montespan—all made at the same time and each costing the same amount of money. Fouquet had a conspicuous grotto on his famous estate at Vaux, made familiar by the descriptions in Dumas' *Vicomte de Bragelonne;* Charles Lebrun, the painter, had one at his country-house, and so did Charles Perrault, the architect, at Méry-sur-Orge, and this last still exists in excellent preservation.

These are by no means all the grottoes which once were famous in France, but the list is long enough to show how fashionable they were. And their history and remains are of especial interest, because, from the love of this rock and shell work and of the irregularly decorative forms it implies, it eventually affected French taste in general, and brought about a revolution, not only in decorative but also in architectural art. Every one knows the architectural term "Rococo," and the nature of the art it characterizes. But perhaps it is not so generally known that the word comes from rocaille (rock-work), and that the form of art it characterizes sprang from the same source. When this fact is known, however, it is easily read in all the work of the age of Louis XV., where unsymmetrical line, and masses, and flowing ornaments of shell-like or sharply pointed, but always irregular shape, mark every kind of manufactured object, from house-fronts, doors, wall-decorations and wrought-iron gates and railings to furniture, table-china and silver, laces, dress-materials, jewelry and every minor article upon which the designer of forms and patterns worked. This is probably the only instance in which a general and radical revolution in taste, affecting art from its highest to its humblest manifestations, originated in a special development of taste as regards the ornamentation of gardens.

Are American Varieties of Fruits Best Adapted to American Conditions?

THE following paper was read by Professor L. H. Bailey before the American Horticultural Society at its meeting last month in Chicago:

Fruit-growers assume that the varieties which have originated in this country are better adapted to our soil, climate and market than those imported from other countries. While the presumption favors this idea, the proposition demands investigation, and, if true, it should be capable of proof. It is obvious that domestic varieties are best adapted to the demands of our markets, because those seedlings which most nearly meet these demands have been selected and propagated. The commercial ideals are definite and easily satisfied, and we need not longer consider them here. But the adaptations to all those various conditions and phenomena which we collectively designate as climate, are obscure, and they have not been carefully studied; and this relationship of American varieties to American climate, so far as it concerns some of the general adaptations of our fruits, is the particular subject of this paper.

We can draw some useful conclusions from a comparison of our native flora with that of Europe, whence most of our foreign fruits are derived. With the exception of some arctic and sub-arctic species, the plants of North America are singularly distinct from the European plants, although much like them. There are few species which are common to both continents. Most of the plants which were once thought to be the same in both continents are now separated by botanists, and I am convinced that this separation should proceed to nearly, if not quite all, the remaining supposed identical species of the temperate latitudes. The more closely we study these species the greater the differences of habit and distribution appear to be. All this proves that, while the European and North American floras had a common origin in circumpolar regions, the present floras of the two continents have diverged, until nearly or quite all the specific types in the central and southern areas are dissimilar. This dissimilarity has been brought about by the action of environments—largely of climate—in the two continents. In other words, the habitual dissimilarity of the floras

proves that the climatic environments are so different that identical species rarely thrive in both. And this fact lends plausibility to the statement that horticultural varieties, which differ from species only in degree and not in kind, must constantly tend to diverge in the two countries.

The dissimilarity of European and American congeneric species is well illustrated in some of our fruits. Thus our cultivated Raspberries, Blackberries, Gooseberries and Grapes are American species, and the profitable cultivation of these kinds of fruits did not begin until we gave up our endeavors to grow the European species. The case of the Red Raspberries is particularly instructive because the European and American species are so much alike that botanists have never been satisfied that they are distinct; but all berry-growers know that the European varieties will not succeed as market berries in this country. This superiority of the American small fruits and grapes is not due to any greater excellence in quality or appearance in these fruits; on the contrary, they are commonly inferior in these points, for they have not yet had a long enough history to bring them to a high degree of perfection. Their success is due to their perfect adaptation to their surroundings, as an ability to withstand our climate or the attacks of insects and fungi. The capability to withstand or repel attacks is well shown in the Grapes, which resist downy mildew and phylloxera better than the European varieties, and in the American Gooseberry, which does not suffer seriously from the mildew. The European Plums are also subject to difficulties which the native species, now coming into prominent cultivation, more or less avoid. What is true of a comparison of the European and eastern American floras appears to be true, in varying degrees, of comparisons of other floras with our own, all of which shows that the horticulture of eastern and central North America must constantly tend to differentiate itself from that of all other countries.

If these general conclusions are well founded, we should even now be able to find some corroboration of them in a study of our varieties of fruits, for the literature of our horticulture covers three-fourths of a century, and evolution aided by cultivation is much more rapid than under wholly natural conditions. Among the fruits which have been brought from Europe the Apple has been longest cultivated in this country, and it thrives over the widest range, and we should be able to draw some valuable lessons from its behavior. The first American work on pomology was William Coxe's, published in 1817. In this work is given a list of "one hundred kinds of the most estimable Apples cultivated in our country." The list contains one hundred and one kinds, of which only about a half-dozen are now popular, and only one, the Rhode Island Greening, can be classed as a general market fruit. The geographical origins of eighty-nine of these varieties are determinable, of which number thirty-two, or thirty-six per cent., are of European origin, and fifty-seven, or sixty-four per cent., are American. The first edition of Downing, 1845, describes one hundred and ninety varieties of Apples, one hundred and eighty of which have known origins. Of these one hundred and eighty kinds, eighty-seven, or about forty-eight per cent., are European, and ninety-three, or fifty-two per cent., are American. Between 1817 and 1845, therefore, there was apparently a gain in the introduction of European Apples over the American; but this need excite no surprise when we consider that those were the pioneer and formative days of American pomology, when great discrimination in varieties was not practiced, and when Europe was the most prolific source of new varieties.

In the second edition of Downing, 1872, we find a decided change. There are descriptions of 1,823 varieties of Apples, and the origins are fairly well determined of 1,326 of them. Of this number 464, or 35 per cent., are European, and 862, or 65 per cent., are American; and these figures undoubtedly give undue advantage to the European Apples, because of the 497 varieties unaccounted for, I should judge that fully three-fourths are American. In the twenty-seven years between the first and second editions of Downing, therefore, there was a remarkable falling off in percentage of Apples of European origin and a corresponding increase in American varieties. It would not be safe to say, however, that all of this loss in European varieties is due to lack of adaptation of these varieties to our climate and other environments. Fashion or the desire to patronize domestic productions may have influenced this result, yet it is not probable that either of these causes could have defeated a profitable variety. But there is another and more important aspect of the question, and that is the fact that probably over three-fourths of the prominent Apples belong to the American part, which comprises 65 per cent. of the list; and of the popular market Apples a still greater percentage is to be found among the Americans. In this connection we may study with profit the Michigan Fruit Catalogue (1888), prepared by T. T. Lyon, which rates all prominent varieties for Michigan in three categories—dessert, culinary and market—upon a scale of ten. This catalogue contains 219 varieties of Apples. Of these thirty-eight are rated nine and ten for dessert, of which two are known to be of European origin and three more are supposed to have come from that country—that is, somewhat over an eighth of the dessert apples of Michigan are of probable European origin, the remainder being domestic varieties. Mr. Lyon admits nineteen varieties to the rank of nine and ten for market, of which two—Duchess of Oldenburgh and Red Astrakhan—are Russian, and another is perhaps of European origin. Less than one-sixth of the Michigan market apples, therefore, are of Old World origin, and one of these—the Duchess—is of recent introduction as a market apple. Of the nine Crab-apples admitted by Mr. Lyon, all but the comparatively unimportant Red Siberian are of American origin.

The Pear affords an interesting study in this connection, for it is a fruit which has been highly cultivated and developed in Europe, but has received only indifferent attention in this country, so far as the production of varieties is concerned. Coxe, in 1817, described sixty-five Pears as grown in this country, of which only four, or less than one-sixteenth, were American in origin. Of the whole list, only the Madelaine is popular now. In 1845 Downing described 239 kinds, 192 of which, or 80 per cent., were European, the remainder being American. In 1872 the Downings admitted 995 varieties, of which 954 have a known geographical origin. Of these, 708 varieties, or seventy-four per cent., are foreign. There has, therefore, been a gradual increase in the percentages of domestic varieties from the beginning, although the foreign kinds are still predominant. In Mr. Lyon's Fruit Catalogue twenty-one Pears are admitted as nine and ten for dessert, of which seven, or just one-third, are American; and exactly the same ratio holds in the twelve varieties standing nine and ten for market. All these facts are indications that even in Pears the American varieties are prominent and are increasing in number, and they suggest the possibility that European varieties may eventually practically disappear from our horticulture.

What is true of Apples and Pears appears to be true also of other fruits. Of the seventy Peaches which Mr. Lyon catalogues, only five are foreign among those rating nine and ten for dessert and market, and of this number only one—the Rivers—is prominent. Next to the Pear, the common Plum is the most peculiarly European of any fruit of eastern and central United States, yet of the fourteen varieties admitted by Mr. Lyon as nine and ten for dessert, one-half are American, and of the six market sorts, four are American. It is interesting to note, also, that the region of adaptation of the common Plum is not large, and that the varieties of the native species are evidently destined to cover a very wide range of our southern and interior territory.

If any conclusion can be drawn from all the foregoing figures and remarks, it is to the effect that, as a rule, American varieties are best adapted to American conditions, notwithstanding the fact that there are some foreign varieties which thrive over large areas of this country.

The question of the adaptations of the Russian fruits to this country at once arises, and this brings up a still broader question, the adaptability of our own eastern fruits to the great interior basin. On a former occasion* I made an examination of the reasons for the premature failure of Apple-orchards in the prairie states, and I satisfied myself that much of this failure is due to the transplanting of New England and New York varieties to those regions. Every fruit-grower must have been impressed with the fact that the Apples of these prairie states are rapidly assuming a different character from those of the east, and the leading varieties in the two sections are even now distinct. The dissimilarity between these great regions in climatic conditions is also well illustrated in the floras, for there is a marked tendency for the specific types of the east to stop at the borders of the prairies. In other words, we have floras characteristic of the prairies and plains. Even the Wild Crab (Pyrus coronaria) of the eastern states does not occur in the prairie regions, so far as I know, being there represented by its congener, P. Ioensis, a well-marked species. More than all this, we know that it is absolutely impossible to grow our common eastern fruits in the cold north-west. Our interior regions must, therefore, be considered apart from the older states, and when we once understand this fact thoroughly much of the prejudice against Russian fruits must disappear

* *On the Longevity of Apple-trees.* Kans. Hort Soc., 1890.

The situation is simply this: the north-west must have an unusually hardy class of fruits, and any type of fruit which will grow there should be encouraged. The Russian is simply one of these types, the Siberian and native Crabs being others. But, inasmuch as the Russian type is the most highly developed of them, it follows that quick results are to be expected from it. If the Russian Apples and the Crabs are more or less adapted to the north-west, I feel sure that American seedlings of them will be still better adapted to those conditions, as a whole, and this must be the opinion of many of the fruit-growers of the north-west, else the talk about promising seedlings of Duchess and other families is meaningless. Already the McMahan, Wolf River, Pewaukee, North-western Greening and others are great blessings to the north-west. I look for the time when the present imported fruits and Crabs will be superseded by their own progeny in the same way that the lists of Coxe and other early writers have been supplanted. Already the tide has set in which shall submerge them. I therefore regard the Russian importations as of immeasurable benefit to our horticulture, but I look upon them as a means rather than as an end. The history of our horticulture everywhere emphasizes the probability of a secondary and more important outcome.

The conclusion of the whole matter, as it now lies in my mind, is this: American fruits constantly tend to diverge from the foreign types, which were their parents, and they are, as a rule, better adapted to our environments than foreign varieties are. In less than a century we have departed widely from the imported varieties which gave us a start. At the expiration of another century we should stand upon a basis which is nearly, if not wholly, American.

Hard Times in West Virginia.

RETURNING to Rose Brake, after an absence of nearly two months, the home-grounds were found parched and browned by the worst drought ever known here. All vegetation was languishing, the foliage of the trees shriveled and scorched, the color of the leaves dull and faded. Even the Virginia Creeper, which in October waves its scarlet drapery from the trunks and tops of the tallest trees, was a sober brownish crimson.

Coming from the hills and mountains about the Delaware Water Gap, where timely showers had kept the grass fresh and luxuriant, and where the trees were already beginning to glow with autumnal color, we found the desolation in the valley of Virginia all the more apparent by contrast. In the home-grounds the evergreens had suffered the most, and many had perished outright. A good watering followed by heavy mulching has, in past summers, tided many nurslings over a parching drought; but this year, with dry cisterns and the absence of the care-taker, such treatment was impracticable. Few deciduous trees or shrubs have succumbed to the heat, but nearly all fall-blooming plants have found it hard enough to hold their own without flowering, and few blossoms cheered the garden-beds. The sunny bloom of the brave Marigolds and Corchoruses nodded a welcome to the visitor, but the Hydrangea-heads had withered on their stems, and the Japanese Anemones were nearly dead.

A few berries ornament the bushes here and there, and the Witch Hazel has put out its yellow fringes amid shriveled leaves. A plant sent to me as Elæagnus longipes, and described as a "shrub or small tree that ripens its berries in July," is now covered with fruit, both green and red, and has capriciously waited for frost before commencing to ripen. The berries have a pleasantly acid and slightly mucilaginous taste. We have not yet tried them as a substitute for cranberry-sauce, for which purpose they have been recommended. They are so pretty on the tree, densely scattered along the limbs, and so quaintly marked with fine gray dots over the surface of lucent green or red, that it seems a pity to pick them for any purpose. The birds trouble them very little, perhaps because birds do not care to try food-experiments; but I fear that when they discover their delicious qualities they will leave very few for us. [The plant is not Elæagnus longipes.—Ed.]

Thunberg's Barberry has turned crimson, and the berries are a brilliant scarlet. Some Thorn-trees are a vivid mass of fruit, and Cotoneasters are covered with balls, which look like tiny apples, yellow and red.

In one part of the grove we have planted trees and shrubs with a special view to their fall aspect, and these we are now watching with special interest. Here are Enkianthus Japonica, Parrottia Persica, and a few other rarities, which are at their best in October; also a fine young Scarlet Oak, Scarlet and Sugar Maples, Sour Gums, Kolreuteria, Liquid Amber, Sumachs, Virgilia, and many shrubs. Of this group, only the Sour Gums have been as brilliant as usual.

Our pretty little Erica carnea, which is planted in a hollow, is as fresh-looking as it was in May, and has bloomed steadily since the end of June without watering. The same may be said of Abelia rupestris, a most beautiful and interesting little evergreen. Aster oblongifolius, still covered with buds, has begun to expand its large blue ray-flowers. This is one of the handsomest of Asters, and withstands drought as well as Portulacas do; hundreds are blooming, undeterred by frosty nights.

Rose Brake, W. Va. *Danske Dandridge.*

New or Little-known Plants.

Aster surculosus.

NEARLY related to Aster spectabilis, one of the most beautiful of the low large-flowered Asters of the coast-region of the northern Atlantic states and now sometimes found in the choicest collections of hardy plants, Aster surculosus replaces that species at the south, where it is found near the sea, growing in sandy soil from southern New Jersey to Georgia, and also on the Blue Ridge of North and South Carolina, where it abounds, and where it was first noticed a century ago by the French botanist Michaux.

Aster surculosus sends up low stems twelve to eighteen inches tall from long filiform root-stalks; they are covered with rigid, nearly entire leaves, which near the ground are oblong-lanceolate, and are linear above. The flower-heads are large and showy, with puberulous involucres and beautiful bright violet rays.

Our illustration (see page 521), which appears to be the first ever published of this handsome plant, was made by Mr. Faxon from a specimen grown in the Botanic Garden of Harvard College.

Foreign Correspondence.

London Letter.

Asters in English Gardens.—The popularity of the genus Aster in England, and especially of that section of it known as Michaelmas Daisies, has had considerable development in recent years. Some difficulty has, however, been experienced by those interested in these plants owing to their names being almost hopelessly mixed, what was known by one name in one place being called by one or several different names elsewhere. The Royal Horticultural Society set itself the task three years ago of remedying this by gathering together for cultivation in their gardens at Chiswick all the shrubby Asters in cultivation. They then appointed experts to study these, and, if possible, reduce their names to order. This has been accomplished, or nearly so. Mr. Dewar, of Kew, was one of the appointed experts, and at a recent meeting of the Society he read a paper on the Asters, in which the views of himself and his co-workers are embodied.

In America you probably know a great deal more about Asters than is known here. At the same time, as a considerable number of improved varieties and supposed hybrids have originated in cultivation here, you will probably be interested in a résumé of Mr. Dewar's paper.

The Chiswick collection of Asters is now the largest and best-known in England. The supposed hybrids and garden-forms are planted side by side with the typical species, supplied from the Kew and Harvard collections. Professor Asa Gray was puzzled by the forms of American Asters grown in England, although, of course, he was thoroughly acquainted with the types. It is supposed that by a process of selection and cultivation extending over a long period in England the characters of some at least of the American wild plants have been more or less modified. The greater number of our Michaelmas Daisies are from species found wild in the eastern United States, few of those found in the west being in cultivation here.

Some of these Michaelmas Daisies are not properly Asters, Erigerons, Boltonias and Calimeris being included among them.

Mr. Dewar says that Asters cross or hybridize as freely as the Columbines and Larkspurs do. He also states that "considerably over one-third of the Asters cultivated in our gardens are crosses or seedlings from Aster lævis and A. Novi-Belgii." These two species, with A. paniculatus and A. longifolius, are evidently most prevalent in the popular garden kinds, although there are something like twenty American species represented here. The named garden varieties are recommended as being much superior to the typical or wild species. A list of the best of the varieties will be published in the journal of the Society.

Fig. 88.—Aster aurculosus.—See page 520.

It is unnecessary to praise the Michaelmas Daisies as autumn-flowering plants. They form the most striking of the flower-pictures in the open air at Kew at this time of year. Massed in the mixed borders or planted alone in beds they are equally effective, and as they are among the easiest to cultivate of all plants, their claim to popularity is of the strongest. Mr. Dewar recommends them as bedding-plants, a purpose for which such kinds as A. alpinus, A. acris, A. Amellus and several others have been in use some years at Kew. Like all other plants, these Asters repay good cultivation. They like a deep, strong, loamy soil, and they should be dug up, divided and replanted every two or three years. Spring-struck cuttings of the young shoots form nice plants in a year. The tall kinds, such as cordifolius, Diana, W. J. Grant, paniculatus, Lindleyanus and Arcturus are suitable for planting to form single specimens on the lawn.

Dr. Masters remarked at the meeting when Mr. Dewar's paper was read that the Michaelmas Daisies, having now "caught on," are certain to improve rapidly in the hands of enthusiasts, as all other garden-plants have when thoroughly taken in hand. At present they are extremely beautiful in the garden, and equally so when arranged in vases. Possibly, however, in a hundred years' time the Michaelmas Daisy will be as far ahead of the present forms as the Chrysanthemum of to-day is of the plants from which they have been "evolved" by cultivators.

Besides the American Asters we have also some beautiful species and varieties of European nativity. Of these A. acris and its forms are first-rate plants for the border and flower-bed. A. canus and A. Dahuricus are equally good. Best of all is A. Amellus, from central and eastern Europe. There are numerous named forms of this species, the choicest of them being Bessarabicus, amelloides, major and cassiarabicus.

From the Himalayas we have the new and beautiful A. diplostephioides, which has tufted radical leaves and tall stems, a yard or so high, each bearing a large flower four inches across, colored rich lilac with a yellow disk. A. Thomsoni is one of the best of the dwarf autumn-flowering Asters, flowering from July to November. A. Stracheyi, also Himalayan, is a creeping species only a few inches in height, with small, but very numerous, blue-purple flowers.

Mr. Dewar also recommends several species from China and Japan, namely, A. scaber, A. Tataricus, A. trinervis and A. Maachii.

ORCHIDS AT ST. ALBANS.—The month of October is, perhaps, the worst in the whole year for Orchid-flowers, but the best for an inspection of the plants themselves. The

gigantic Orchid business at St. Albans, built up by Mr. F. Sander, deserves a much larger space than you can spare to do it anything like justice; its enormous well-stocked houses, its labor-saving appliances, the comprehensiveness and health of the collections, the excellence of the cultivation, and the general interest of the whole establishment, I must not attempt to deal with at present. I had occasion to visit the St. Albans nurseries this week, and I propose to set down a few of the impressions made as I walked, during the whole of an afternoon, through the many houses in company with Mr. Sander and his clever lieutenant, Mr. Godseff.

Order, neatness, close attention to cultural detail; these are conspicuous features of this nursery. Large houses, but the plants arranged close to the roof-glass, plenty of hot-water pipes, light, a growing atmosphere, fed with plenty of moisture and the exhalations of lime, tan and leaf-mould, these are some of Mr. Sander's secrets. That they answer is evident in the health of the thousands of Cattleyas, the deep green, well-leaved Ærides and Vandas, Cœlogyne Dayana in thousands, with fine pseudo-bulbs and broad leathery leaves, all healthy, and growing with a vigor that suggested leeks. Of course, the grand Dendrobium Phalænopsis is there, flowering, too (it is never out of flower, Mr. Sander says), one spike bearing twenty-two large richly colored flowers, all open and fresh. Cattleya labiata, with hundreds of flowers and thousands showing; C. Bowringiana a broad cascade of flowers. Dendrobiums are not every gardener's successes, but at St. Albans they are perfect. There appears to be enough of Odontoglossum crispum to plant a ten-acre field, and the plants look as healthy as the healthiest Turnips. What an amount of real pleasure one gets out of looking at plants that are healthy and happy.

Sobralias are very numerous, some new in appearance, with distinctly marked leaves, beside S. xantholeuca, S. leucoxantha, S. macrantha and its variety Alba. Lælia Perrini filled one end of a house and was in full bloom; a beautiful Orchid, easily grown, for five years at any rate. Cypripedium Schlimii, growing in a moist cool corner, was healthier than I had ever seen it before, and flowering freely, too—I don't mean one plant, but perhaps two hundred fine specimens in eight-inch pots. Cattleya Alexandra fills, or nearly fills, the whole side of a broad house hundreds of feet long, and C. Victoria Reginæ is equally abundant. Barkerias, Catasetums, Miltonias, Calanthes and Thunias are grown in great quantity, grown well and are flowering well, or promise to do so shortly. Lælia anceps is here in all its varieties, every variety in great numbers and apparently every plant showing flower. And thus it is in house after house, tropical Orchids of all kinds, intermediate and cool, everything good one might reasonably say, and enough of everything to supply everybody. The breeding-houses are stocked with seedlings in great numbers from Cattleyas to—well, I mustn't say what, but there are some promising miracles in those half-dozen houses which Mr. Maynard, who is a second Seden, has under his special charge. I must not omit to mention the many plants in flower of Cypripedium Chamberlainianum and Renanthera matutina, a most elegant orange-flowered tropical Orchid.

St. Albans is a great Orchid emporium. It is also great in other plants, or soon will be, Mr. Sander now devoting several houses to "new and rare" plants, other than Orchids. I was allowed to inspect the hidden treasures, and I saw there a considerable number of beautiful plants which are certain to find general favor when they are sent out.

We are often told that the nurseryman is only interested in plants as a means of making money, but what an enormous amount of valuable work he does for horticulture while filling his purse with guineas will be evident to any one who cares to study the history of garden-plants and gardening. The nurserymen introduce all the good things nowadays. Here, for example, is a quartette now abundantly represented and flowering beautifully, which we owe to such business enterprise, Vanda Sanderiana, Dendrobium Phalænopsis, Cattleya labiata, Cypripedium Chamberlainianum.

London. *W. Watson.*

Cultural Department.

Hardy Bulbs.

WHAT are generally considered hardy bulbs are, in reality, only so in name, and in the sense that they will live through the winter, even though frozen. In fact, but few bulbs produce their flowers as well after being frozen. Hyacinths are classed with the hardy bulbs, but in Holland, where they are grown to supply the markets of the world, they are protected with the greatest care. The beds there are thatched with reeds, which grow in abundance on the banks of the canals, as carefully and as warmly as the roof under which the family sleeps.

Nearly all the Narcissus are as carefully protected, and for the same reason. The Crocus belongs in the same list. Tulips are more hardy, but are greatly benefited by a slight covering of leaves, manure, or anything that will accomplish the purpose. It is the general opinion of those authorized to speak for the Lily that it is perfectly hardy. This opinion, supposed correct, not having been disputed, finds its way into seedsmen's catalogues, and is prominent in the "cultural instructions," where it does an immense amount of harm. It is founded on the fact that the species denominated hardy are natives of cold or temperate climates. While it is true that some of the species are found in the coldest parts of the habitable globe growing most luxuriantly, it is equally true that these same species are not hardy in our climate to a degree which renders it safe to plant them in our borders without protection. It is but proper to note that there is no climate more severe than ours on all bulbs that are considered hardy and left in the open border during winter. This is particularly applicable to the coast from Massachusetts to Virginia, where the thermometer often indicates forty degrees of frost while there is not a particle of snow on the ground to protect the bulbs. Here the frost penetrates the earth to a great depth one week, and is entirely out the next. These constant changes from freezing to thawing cause the earth to contract and expand to such a degree as to frequently tear the bulbs in pieces. We have had thousands destroyed in this manner.

But let us be more specific. Take the beautiful little Lillium tenuifolium, a native of Siberia, where it is largely grown as an article of food. In its native soil it is perfectly hardy, here it is not. Why? Simply because in its Siberian home the first indication of winter is a snow-storm that covers the ground so deeply that frost rarely, if ever, penetrates it at all, while here the earth is frozen to a depth entirely unknown there, notwithstanding their climate is much the colder of the two. The same is true of the Lilium Martagon, the bulbs of which are eaten by the Cossacks; in Russia it is perfectly hardy; with us, in the much milder climate, it will rarely survive more than a single season unless protected, and with that precaution it grows with more vigor here than in its native home.

In our eastern states, particularly in New Hampshire and Vermont, where the ground is nearly always covered with snow during the winter season, all kinds of Lilies grow to the greatest perfection. We have seen finer bulbs of L. auratum, L. Brownii, L. Chalcedonicum, L. Martagon, as well as other species, grown in these states without the least artificial protection than we have ever known produced elsewhere. There the bulbs named are always healthy and increase as rapidly as any of our native species, merely because their winters are always attended with sufficient snow to protect all vegetation against injury from freezing.

Nature is very considerate in this matter. Wherever the climate is the coldest there will be found the greatest protection given the vegetation. In our own woods there are many delicate little plants that are protected by their annual covering of leaves and snow, that we cannot grow in our borders without the most careful protection, and many of our native forest-trees struggle for an existence and finally succumb to winter's wind and cold when planted in the open.

The question may be asked, and it is a pertinent one, "Do not our native Lilies have the same elements to contend against as those not indigenous to our soil, and, having them, escape uninjured?" Certainly, yes; but nature always protects her own, and in collecting our native species we see how wisely and beautifully it is done. The Lilium superbum is rarely found excepting in moist woods or marshy grounds,

where the low-growing trees or shrubs form a network above and beneath the bulbs, affording ample protection against the action of the frost, should it penetrate the heavy mulching of leaves that nature has provided for their protection. L. Canadense, or common Meadow Lily, forms its bulbs very deep, usually beyond the reach of frost, as it has for a covering a very heavy turf, than which there can be no better protection. In our own nursery rows we find this Lily by no means hardy.

Whatever may be the cause of failure in the flowering of Lilies and Dutch bulbs of all denominations when planted in our borders, we are fully convinced, from our own observation and experiments, that when they are protected so that frost cannot reach them they will invariably succeed, and thrive in proportion as the other conditions of growth are more or less favorable; while those left unprotected, if in exposed situations, are quite as sure to fail.

The protection of a bed of bulbs is a simple and inexpensive operation. The best, because the most natural mulching, is a covering, say six inches in depth, of newly fallen leaves; these kept in their places by a few boughs or pieces of board, or by throwing a little soil over them. Coarse manure is a splendid mulch, because it affords the protection required, and enriches the soil near the surface, where the feeding roots of the bulbs are to be found. Salt or marsh-hay is also an excellent protection, and not unsightly. In short, whatever material is most convenient and will accomplish the purpose is the one to be used.—*C. L. A., in the Florists' Exchange.*

Fig. 89.—The Tan Bark Oak, Quercus densiflora.—See page 517.

The Colchicums.

THERE are about thirty species of Colchicum, mostly natives of southern Europe and Asia Minor. They may, for convenience, be divided into the vernal class, with flowers that appear in spring, together with the leaves, and the autumnal class, whose flowers are not developed until late in autumn, when the plants are destitute of foliage. The leaves of this last section are put forth in spring, but fade away in summer, not to appear again before the spring following.

The flowers are generally purple or white, running into many more or less distinct shades, and in some members of the autumn-flowering group they are beautifully tessellated. C. luteum, however, is quite distinct from all other species. It is one of the spring-flowering kinds, a native of the Himalayas, with small bright yellow flowers. The plant would probably prove too tender for this locality, though it is said to be found at a considerable altitude in its native country. Like many of the other species, it is next to useless for ordinary decorative purposes, and its cultivation may wisely be confined to botanical institutions. The distinct color of the flowers may be of service to cross with one of the large-flowered kinds for a distinct hybrid; owing to the widely different character of the plants and their habitats the likelihood of success in such an experiment is decidedly problematical.

In general appearance the Colchicums bear a strong resemblance to the Crocuses, for which, indeed, they are often mistaken. The stamens, however, afford a ready means of identification between the two, there being six in the former, while the Crocus has but three. The underground stems are cormous (rhizomatous in C. procurrens), varying in size from that of a marble to that of a man's fist. The leaves also differ considerably in dimensions, being small and inconspicuous in some species, while in others they measure from twelve to eighteen inches long and three to six inches wide.

The autumn-flowering group contains the most generally useful species, and a few roots of the best of these should be given a place in every garden. Their flowers show up brilliantly when the glory of the summer garden is fast departing in September and October, and the plants are quite hardy, or require at most only a covering of withered leaves to preserve them from the severest frosts. The flowers without the leaves, it is true, present a rather forlorn appearance, but established masses of the plants afford so solid an array of bloom that foliage seems unnecessary, especially as there is an abundance of luxuriant foliage in most gardens at this season. The rich brown earth makes not a bad setting for their pleasing colors, and, as the autumn moves steadily onward, there is something of a fantastic charm about their mushroom-like appearance. They start like colored rockets from the ground, and shed a light which both illuminates and cheers their entire surroundings.

Colchicum autumnale, the Meadow Saffron of European

countries, takes a prominent place among the species. It was at one time a familiar autumn feature of the fields in the western and southern portions of England, where it was cultivated to some extent for the roots, said to yield a medicine of material efficacy in gout troubles, notwithstanding the fact that it is known to contain, in common with nearly all the other species, properties of a highly poisonous character. The plant retained a hold on those parts of England long after its systematic cultivation was discontinued, but at this time it is practically extinct there, a result of persistent collection by druggists and nurserymen.

The leaves of Colchicum autumnale are strap-shaped, deep green, and from nine to twelve inches long. The flowers are of a pale purple color, with narrow tube from four to six inches high, and limb from two to three inches wide, appearing about the middle of September, and lasting from a month to six weeks. There are many varieties of this species, the best of which, with the colors of their flowers, are Album, pure white; Roseum, reddish purple; Atropurpureum, deep purple; Striatum, purple and white; Album Plenum, double white; Purpureum Plenum, double purple. The double varieties are the more desirable, as the flowers last much longer. C. Byzantinum resembles C. autumnale somewhat closely, but it is a more profuse bloomer; the flowers are a pale rosy purple shade, and the leaves are much broader. This plant inhabits the Levant.

The best species of the genus is Colchicum speciosum, a native of the Caucasus. The leaves are of a bright green color, about a foot in length, and from three to four inches wide. The flowers are from nine to twelve inches high; limb cup-shaped, from three to four inches in diameter, and of a rich reddish purple color. C. Sibthorpii, a species only recently introduced from the Grecian mountains, is said to be a close rival of C. speciosum in the size of the flowers, which are of a deep lilac tint and obscurely tessellated.

Colchicum variegatum, common to the Levant and Asia Minor, is remarkable for the exquisite tessellation of its flowers, the colors being rich purple on a lilac ground; its variety Parkinsoni, which is sometimes accorded specific rank, has similar markings of a deeper purple shade on a pure white ground. The leaves have wavy margins, but in other respects these two plants and C. autumnale are much alike.

Colchicums do best in a light rich soil and an open position. The corms should be planted, according to size, from three to six inches beneath the surface of the soil, and, as the plants are most effective in large masses, they should be arranged in that way. This should be done as early in summer as practicable—that is, as soon as the roots can be had. The plants are easily increased by separating the corms, and they may also be propagated from seeds, though the latter is a slow process, as seedlings rarely reach the flowering stage before they are three or four years old. The seeds ripen freely, but they must not be sought until the early part of the summer succeeding the flowering season. They remain underneath the ground during the winter months, and are developed with the new growth in spring, rising beyond the surface to be ripened by the summer's sun. They should be sown in a cold frame when perfectly ripe, covering lightly with sandy soil.

Cambridge, Mass. *M. Barker.*

Cape Oxalis.—III.

ANOTHER group of these plants consists of species whose flowers are large and showy, and produced single, and whose foliage consists of leaflets borne in twos or threes at the ends of the leaf-stalks; there is often, also, a foliaceous expansion on the sides of the stalks. These forms are so much alike that it is probable that they are not all valid species, yet as garden-plants they are enough unlike to merit distinctive names. They are all of easy culture, requiring no special soil or treatment. If potted at the beginning of September they will flower well in October and November. If they are kept dry until the middle of the latter month and are then planted in a cold frame and kept dark and cool through the winter they will appear above ground in April, and will generally blossom well, though some kinds will do better than others. They will survive with covering, as will all other Oxalis, without the protection of glass, but the wetness they then have to endure usually prevents the production of flowers.

Oxalis crispa has unusually large and broad leaflets growing in pairs, and the flowers are white, very faintly tinged with pink, much nearer a pure white than Jacquin's figure would lead us to suppose. O. asinina and O. leporina are named from the resemblance their long, narrow leaflets bear to the ears of an ass and of a hare respectively; the resemblance, however, is not very close.

The flowers of the first are yellow, of a rather deep shade; those of O. leporina are white. O. fabæfolia is very ornamental from the great size and bright color of the leaflets, which grow in threes, and the large size and brightness of the yellow flowers. O. lancæfolia is a two-leafleted variety with yellow flowers not more than an inch in diameter. The number of leaflets given with each of these species is the usual number, which is not invariable by any means, for often the same plant will have leaves of both two and three leaflets. There are many other species, or reputed species, of this group, some of which I have, but they are so much like some I have described that I am not sure that they are correctly named, and therefore it will be better to say nothing more of them at present. Several species, with from five to seven leaflets and without leaf-like wings on the sides of the stalks, form another group of very distinct appearance. Their flowers are all yellow, of various sizes and shades, all striped outwardly with red, yet all sufficiently unlike to be worth growing. O. lupinifolia has from six to ten leaflets, that is six, eight or ten; the number is, I think, always even, and there is a dark blotch at the base of each; O. flava has five, seven or nine slender leaflets, so slender that several bulbs should be grown together to prevent a bare appearance. The seven or nine leaflets of O. flabellifolia are long and strap-shaped, quite unlike those of any other species. In O. pectinata the five or seven leaflets are somewhat fleshy and folded lengthwise, so that the opposite sides stand about ninety degrees apart. There are several species closely resembling this group from Mexico, Brazil and Chili, but no others, as far as I know, belonging to the Cape.

Canton, Mass. *W. E. Endicott.*

Fern Notes.

THE work in a Fern-house at this time of the year is largely of a routine character, but, nevertheless, it is far from being uninteresting, for there are constant attractions in watching the development of the fronds or surprises in the production and growth of seedlings. One very necessary precaution at this season is that of watering early in the day, so that the fronds may dry off again, for while a moist atmosphere is required at all times, yet a surplus of moisture on the foliage of the more delicate species will disfigure them. Another point of much importance is ventilation. Comparatively few Ferns relish a close atmosphere, with the possible exception of the Filmy Ferns, and it is, therefore, advisable to keep some of the ventilators open during the night as well as the day just as long as the weather will allow such practice. At the same time cold draughts must be guarded against.

But little potting is needed just now, except in the case of some small plants that will not carry through the winter in their present pots, for most of the larger plants will be nearly through with their active growth, especially those which are partially, or entirely, deciduous, and to this class a late potting is rather injurious than helpful.

A corner devoted to some seedlings of the more common sorts, such as those in general use among the florists, will prove very useful in helping to supply a mantel or table decoration when such may be needed. The plants for this purpose are most convenient when grown in three-inch pots, and for the same purpose a sufficient quantity of Selaginellas of such kinds as S. Kraussiana, with its variety Aurea, S. Martensii and S. densa may be readily grown under the benches in the Fern-house. Space can be thus economized, and what is frequently an unsightly portion of a greenhouse is covered and made presentable.

If space will permit, some of the smaller Tree-ferns should be planted out in the centre of the Fern-house, even if it be only a small stem or two of Dicksonia antarctica, as exemplars of this noblest class of Ferns. A pretty effect may also be secured by clothing the stem of a Tree-fern with a covering of one of the creeping species, such as Oleandra nodosa or some of the dwarf Davallias. Sections of an old Fern-trunk also make excellent material on which to grow the Platycerium, as they offer a congenial medium for the roots of the Stag-horn species, and have besides good lasting qualities.

Where exhibition Ferns are grown some staking is necessary, but it is well to remember that only enough stakes should be used to display the natural beauties of the plant, formal tying being an abomination when applied to a Fern. For this purpose steel wires are very neat, and are less noticeable when painted dark brown or black; in fact, I have used the ribs of an old umbrella more than once in staking a large Adiantum, and found them very satisfactory.

Thrips are to be found at any season of the year, and will spread much more rapidly on Ferns that are kept in too warm a temperature. The best remedy for them is tobacco-water, into which the foliage affected should be dipped. The decoction should not be too strong if there are young fronds on the plant under treatment. Even weak tobacco-water is very distasteful to these insects, and, when used with reasonable care, there is little fear of injuring the foliage, except on such tender species as some of the Cheilanthes and Gymnogrammes.

To dispose of slugs the camphor method is best, as this gum can be spread among the plants in small pieces, or thrown into the centre of the crown of a plant without any likelihood of injury. It proves to be the most satisfactory remedy I have tested as yet. A special instance of the value of this treatment was brought to my notice last winter in a cut-flower establishment, where a Carnation-house had become badly infested with snails. The grower dosed a space of fifty feet in length with camphor, and, as a result, secured several thousand flowers from the plants in this area, while the remainder of the house was a total loss, owing to the work of the snails.

Holmesburg, Pa. *W. H. Taplin.*

Magnolia Soulangeana.—It is, perhaps, noteworthy that this, one of our earliest and best Magnolias, is now ripening an abundance of fruit, and the large scarlet seeds are very conspicuous as they burst their covering. The plants also bear a fine crop of flower-buds, promising a rich floral treat next spring. This is undoubtedly the best early-flowering Magnolia we have, though its appearance lacks finish in the total absence of foliage at the time of flowering. The plant is of neat and compact habit, and the large, purple-tinted, white flowers are sweetly fragrant. The flowering season extends from February to May, inclusive, and it is early or late as the weather is mild or inclement. M. Soulangeana is of hybrid origin, having been raised in France by Monsieur Soulange-Bodin from a seed obtained by fertilizing the Chinese M. conspicua (the Yulan) with the pollen of M. obovata, a native of Japan. It is an improvement upon both parents, and perfectly hardy and reliable in our climate. A few successive warm days in early spring will sometimes induce the flowers to expand, and then they are easily injured on the return of frost, as was the case last season. A piece of light canvas or sheeting thrown over the trees in such an emergency will go a long way in protecting the flowers against serious injury.

Cestrum aurantiacum.—The bright orange-yellow blossoms of this species are very striking and attractive in the greenhouse at the present time. The plants were plunged in the open garden early in summer, where they flowered profusely during the first part of the season. They then made free growth, and were taken up and placed under cover a few weeks ago. C. aurantiacum is a native of Guatemala, and has been in cultivation since 1844, when it was introduced by Mr. Skinner, an English gentleman. It is of erect habit, and the alternate leaves are oval, pointed, of rich green color, margins wavy, and, with two-inch petiole, about eight inches long. The sessile flowers are tubular, with five reflexed segments at the apex, where they measure almost half an inch across. Their length slightly exceeds one inch, and they are produced in panicles. This plant is easily cultivated, and does well in any soil in which rich loam predominates. In winter it requires only sufficient heat to exclude frost, but established plants like all the light and sunshine they can get. Propagation may be effected by means of cuttings, which should be kept close and shaded until rooted.

Phygelius Capensis.—This is one of our most charming perennials, and one that will be popular when it is better known. It is treated in this country as an herbacecus plant, but is in reality a dwarf shrub of compact, bushy habit, and about three feet high. The reddish stems and branches are densely furnished with opposite, light green, ovate leaves, the edges of which are serrate. The leaves diminish in size from the base of the stem upward; the blade of the largest measures about four inches, and the petiole two inches in length. The drooping flowers are curved and tubular, an inch and a half long, mouth of five-pointed, spreading segments three-fourths of an inch in diameter, bright red on the outside, and orange-yellow within. They are borne very profusely at the extremity of the shoots in large, erect, tapering panicles, which often exceed twelve inches in length by nine inches through at the base, and the plant blooms continuously from early summer until cut down by severe frosts late in the autumn. P. Capensis is a native of Kaffirland, South Africa, where it grows by the sides of streams in the mountainous regions. It was introduced in 1855, by the Messrs. James Veitch & Sons, of London, England. It is a good border-plant, thriving well in any good garden-soil, and if a thick covering of leaves is applied before the winter sets in the lower parts of the branches, with the roots, will remain uninjured by frost, sending up in spring shoots more vigorous than those of the preceding season. In the warmer sections of the country, with a little encouragement in the form of richer soil and frequent supplies of water in dry weather, it will doubtless grow freely and flower abundantly during the greater part of the year. Cuttings of the young wood root quickly in summer if they are inserted in pots containing sandy soil, placed in a frame under glass and kept close, moist and shaded. The young plants should be grown in a cold frame until the following spring, when, on starting into growth, they may safely be planted in an open border. Seeds are obtainable from flowering plants in large quantities, and they should be sown during the spring months. A little heat is necessary in raising seedlings, which should afterward be treated in the same manner as cuttings.

Cambridge, Mass. *M. Barker.*

Hardy Ever-blooming Roses.—My attention was recently called to a very fine specimen of the Gloire de Dijon Rose. It was growing alongside a house, and had reached the second-story window. Its beautiful rosy salmon-colored flowers were still abundant, as they had been all summer long. It ought to be more generally known that this climbing Tea Rose is one of the hardiest of its class. It needs no protection at all here. Speaking of climbing Roses, why is it that the Crimson Boursault is so seldom seen? It is true that it blooms but once a year, but many less handsome ones do no more. Its crimson flowers are most beautiful, and then, as with all Boursaults, it is almost free from thorns. Among Tea and Bengal Roses which live out with little or no protection here are the following kinds: Archduke Charles, rosy crimson; Malmaison, flesh and fawn; Sombrieul, creamy white; Homer, salmon and rose, beautiful in the bud; Hermosa, rosy pink, and Marie Ducher, salmon-rose. We plant these sorts in sheltered places near dwellings, or in borders where hedges protect them a little, and this is all the care they get in winter. Their tops are frozen down more or less, but as these Roses want a good pruning in spring this does not hurt them.

Germantown, Pa. *Joseph Meehan.*

Correspondence.

Rambling Notes from the Ozarks.

To the Editor of GARDEN AND FOREST:

Sir,—One of the features of the Ozark Hills is the essentially local character of many of the trees and plants growing there. In the course of considerable wandering over half a dozen counties of south-west Missouri and north-west Arkansas, all in the Ozark Mountain region, I have found Gentian puberula, Cypripedium spectabile and parviflorum and an unidentified species of Tillandsia in widely detached localities, though often quite abundant in those places. I know of but two places in our county where the beautiful yellow Dog-tooth Violet is to be found, and of but one locality each where Lilium Canadense and the common Cat-tail are indigenous. Within a radius of one hundred and fifty miles of this place I have but once found Beech, Pecan, Shag-bark Hickory, Linden and Liquidamber, among trees; Black Alder, Wahoo (Evonymus), Leatherwood, Celastrus scandens, Clematis Pitcheri, C. coccinea and C. crispa and Wild Hop, among shrubs and vines; Œnothera Missouriensis and Œ. speciosa, Viola pedata alba, Clitoria Mariana, Iris hexagona, Hepatica triloba and Cypripedium candidum, among herbaceous plants; and Nelumbo lutea, Nymphæa odorata and Nuphar advena, among water-plants. Of course, there are many species of trees and plants that are common to all this region, but this but emphasizes the fact that other species, seemingly as robust and capable of dissemination, are to be found only within circumscribed limits, often but a few rods in extent. Probably the geographical position of this range explains the matter, extending as it does between the northern and southern portions of our great country. A close observer notices that many species common in the north are only occasionally to be found here, while there is quite a sprinkling of species generally found considerably farther south. The flora of the Ozarks has been very imperfectly collected. The lax cattle laws have caused many rare plants to be lost in the thicker settlements by the incessant browsing and trampling to which they have been subjected, but in the wilder mountain regions it is probable many valuable intermediate species can yet be found. It

is a thousand pities we Americans have to wait until our wild flowers are gone before we awake to their value.

July and August were hot, dry months in the south-west. A trip through the valleys at this time showed that the display of wild flowers was greater than the average display of cultivated flowers in village and country door-yards. There the early annuals had been burned up by the heat, and the autumn flowers were not yet in bloom. Not so the field and wood. The dry and rocky hillsides were dotted with white Euphorbia corollatas, rose-purple Echinaceas and the great purple-throated blooms of Ipomœa pandurata. The fence corners were fringed with scarlet Silene Virginica and magenta-colored Callirrhoes, while the meadows were seas of gold and white and pink, where the Coreopsis, Sabbatias and Erigerons nodded their countless blossoms in the summer breeze. Mother Nature's garden is always full, in spite of drought, because of her abundant supply of deep-rooted perennials and heat-loving, drought-enduring plants. There is a lesson in this for each of us, if we would but take it.

Another lesson we might learn with profit from a midsummer outing is the great value of fine-fruited plants. We used to think plants were only worth growing for flowers; then we learned to appreciate fine foliage as well; now we need to learn that few things are more attractive in midsummer, autumn and winter than plants and shrubs with beautiful fruit. How full the woods are of pretty things in that line! There are hundreds of dusky crimson spikes of Rhus glabra gleaming in the sun like jeweled passementerie, acres of the Symphoricarpus or Indian Currant, with their coral-like sprays of tiny red berries; there are bead-like fruits on the Black Alder, the Spicewood and Cornus, long strings of shining black berries on the Pokeweed and huge umbels of purple-black Elder-berries. To these we may add the homely fragrance and the dainty green of the wild Hop, the curious clusters of the Bladder-nut and the equally curious pale brown, warty clusters of Buckeyes. Nature has something for every season.

Pineville, Mo. *Lora S. La Mance.*

The Sierra Nevada Forests.

To the Editor of Garden and Forest:

Sir,—An association styled "The Sierra Club" has recently been incorporated at San Francisco "to explore and render accessible the mountain regions of the Pacific coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada Mountains." Among the incorporators are many of the leading citizens of the country. The University of California and the Leland Stanford, Jr., University are represented upon the Board of Directors.

The beautiful forest-growth of California, its gigantic Redwoods, its magnificent Douglas Spruce, its glorious Pines (P. Lambertiana and P. ponderosa) are noted the world over. Hidden among these great trees, in shady recesses, are the sources of many living springs, which supply water to the plains below, thirsting for irrigation, and carry wealth, beauty and prosperity wherever they flow. While it is true that the snow-capped peaks of the Sierras furnish an ever-living water-supply to the rivers of California, still the forests, with their soft loam and deep-cut cañons, are in turn natural cache-basins, retaining the supply of moisture and gradually measuring it out to the surrounding country as regularly and as automatically as the floodgates of a reservoir. If the forests are destroyed the water will rush down the rocky cañons and bare mountain-slopes without restraint, as is now the case in all the mountain torrents above the timber-line.

In the timber-regions no care is taken to prevent fires which every year destroy leagues of forest which a century cannot restore. Again: after the tree is felled by the lumbermen only one or two of the end or butt logs reach the mill, and the remainder are left to rot or to furnish material for a conflagration when the first careless mill-hand or sheep-herder passes by and builds his camp-fire.*

The State Board of Forestry of California recommends the withdrawal of the remaining unsold timber-lands and advocates laws to regulate the amount cut each year by the timbermen in order to prevent this wholesale destruction. The men who have formed the Sierra Club will aim to bring these matters to the attention of the people of California and create a public sentiment strong enough to be recognized by Congress, so that prompt and efficient means may soon be used to preserve these natural parks.

These men are lovers of nature, but it is not sentiment nor a desire to interfere with a legitimate business of timber-cutting that influences them in this work. It is rather a conviction that the future agricultural development of the Pacific coast is at stake, and can only be secured by adopting some efficient means for preserving portions of the coniferous forests, which are the natural reservoirs of the Sierra Nevadas.

San Francisco, Cal. *Mark B. Kerr.*

* Mr. Hubert Vischer, C. E., in First Biennial Report Cal. State Board of Forestry (Appendix "A"), states that only seventy-three per cent. of logs cut are actually sawed.

Fungus Troubles in the Orchard.

To the Editor of Garden and Forest:

Sir,—The Apple-leaf blight has been serious in Kansas this year, if we may judge from the following extracts from a letter written by a leading pomologist in that state. These statements are interesting in connection with the current discussions upon the Apple-scab:

"I am satisfied that the almost total failure of our apple-crop is due to the same cause as the failure in western New York two years ago—an extremely low temperature and excessive humidity prevailed before, during and after the blossoming-period, which augmented fungus growth. The leaf-growth was deformed, contracted and weakly, and the small apples, not larger than a small-sized marble, showed the presence of the fungus in a remarkable prevalence, as it caused about all the fruit to drop off, and the few which held on were so scabbed and distorted as to be hardly recognizable as apples, and soon after dropped also. Later on, the leaves showed the rust-colored spots, while the first growth curled up, and many dried up and died. The injury in old bearing orchards was quite noticeable in the later growth, which appeared stunted; at least, the development was not freely made, and below the standard of healthful trees.

"The present year is the first in the history of the country which has developed these conditions, and our people were unprepared to protect the orchards because not expecting such an attack. The same cause developed the Raspberry-rust to an alarming extent, and in some plantations the canes midway are as denuded of foliage as in winter-time. This, it seems to me, must weaken them and render them susceptible of injury by the winter's cold, and therefore materially lessen the next year's crop."

Cornell University. *L. H. Bailey.*

A Good Hybrid Anthurium.

To the Editor of Garden and Forest:

Sir,—Anthurium Greyanum is one of the finest of the Andreanum section, and is a hybrid between that species and A. ornatum. The foliage is intermediate between the two, having the compact habit of A. ornatum and the bright foliage and free habit of A. Andreanum. The flower rises well above the foliage and is very attractive; the spadix, red-brown, two and a half inches long; spathe open, cordate-ovate, pure white, two inches across and three inches long. The name was given in compliment to William Grey, of Albany, New York, by whom it was raised.

Orange, N. J. *R. M. G.*

Chrysanthemums at Short Hills, New Jersey.

To the Editor of Garden and Forest:

Sir,—Messrs. Pitcher & Manda seem to win a fair share of the prizes in the various Chrysanthemum shows each year. It is doubtful, however, if their greatest prize is not the reputation gained each season in their nursery. As is well known, they invite their friends several times each year to special exhibitions of plants and flowers. As the years go by these invitations seem to be accepted in increasing numbers, as visitors have found there a constantly enlarging and well-kept collection of fine plants. It is perfectly true that not even at the largest and best-furnished public horticultural show can a visitor see a tithe of the plants always on exhibition under these acres of glass. Then, again, there are people who enjoy flowers free from the blare of trumpets and the glamour of electric-lights. This week, as is their annual custom, the United States Nurseries opened the Chrysanthemum season with a private exhibition, at which were shown all the flowers which, later on, will be entered in the numerous exhibitions in all sections of the country. The Chrysanthemum-plants filled four of the largest houses of the hill-ranges. Each of these houses is some 250 feet long by sixteen feet wide, from which one familiar with the ample flowering habit of the plant

may gain an idea as to the mass of color. This same mass of color is usually the principal thing one finds to criticise at a Chrysanthemum show. Even when furnished with good foliage and helped by backgrounds and separating foliage-plants, the profusion of flowers and glare of color are apt to produce bewilderment and confusion rather than a well-defined enjoyment. In the upper house the plants were arranged for effect in a very tasteful way with sloping, irregular side terraces, and the main floor occupied by specimen plants, arranged cunningly, so that as far as possible as one followed the winding paths the beauty of each specimen could be enjoyed separately. And while the house was filled with flowers by the thousand, at no point of view was the scene oppressive. Two houses were filled with the new seedlings of the year under trial. There were said to be 30,000 of these, apparently a not excessive claim, as they were grown to single stems and planted in boxes at six inches apart. The lower range contained a selection of plants in readiness for the Madison Square Exhibition, where, no doubt, they will be heard from.

There was much to interest a Chrysanthemum-expert. In the first place it may be said that the plants were never grown so well here before. Good, strong, fine wood and well-developed foliage was the rule. It is always interesting to find new marvels, but one finds equal interest in observing how the marvels of former years are doing. It was pleasant to see so many of the former introductions of this nursery still showing their first form. To mention a few, Miss Annie Manda is a pure white incurved hairy kind, having the depth which the Mrs. Alpheus Hardy lacks. The Hicks Arnolds are again great balls of golden yellow. Mrs. E. D. Adams has improved each year, and is a massive white. A. G. Ramsey, when well grown, is a fine reflexed carmine, very telling. Mrs. Lewis is a very charming reflexed flower of a very pure clear yellow of medium depth. The great bronze Harry May was not seen in its former profusion. Mrs. Grace Hill, Mrs. W. A. Kimball and Mrs. Hood Wright seem to be a few of the other kinds which will probably stay.

One does not often have a chance to examine 30,000 new flowers, and the two houses occupied by these afforded a very striking illustration of the sportiveness of the Chrysanthemum. We are familiar with the fact that of so many thousands of human beings no two will be found exactly alike in appearance. We are not so familiar with the fact that we have a flower, of which two identical seedlings will hardly be found among many thousands. And this is the case even when many of the seedlings have the same parent. Of the seedlings here, a record had been made of the seed-bearing parent, and the flats of plants all bore pedigree-labels. Presuming this had been done with accuracy, the results were remarkable, each lot showing the widest possible diversities both in color and form, and often with no trace of likeness to the special variety from which it had sprung. A large number of hairy kinds in all colors and forms were seen, probably hybrids from Mrs. Alpheus Hardy, the female parent of very many of the new seedlings. Mr. Manda also claims to have secured from this variety many of his most distinct or fancy colored flowers, which he had in large numbers. Looking over the various flowers one could realize why each season so many new varieties are offered, for there seemed to be literally hundreds of first-rate flowers which any one would hesitate to discard. The new selections of the season were as yet unnamed, but some of the most promising numbers were No. 8, a fine spotted variety; No. 92, light yellow, reflexed; No. 42, incurved, white; No. 74, Stars and Stripes, white, striped red; No. 60, incurved, yellow; No. 78, salmon-pink; but it seems useless to detail under dry numbers the flowers which, no doubt, will soon be christened into the feminine gender.

The exhibition is primarily one of Chrysanthemums, because Chrysanthemums are just now in season, but no visitor to the nurseries will leave without at least walking through the great house where, under an acre and a quarter of glass, there are enough Palms to stock the Horticultural Building at Chicago if each one had all the room it needed. Two hundred and thirty species and varieties are represented here, and some of them are truly magnificent specimens. Here are Arecas, Kentias, Thrinaxes and many more with stems twenty feet high; besides Tree-ferns, a hundred of them, and many with trunks at least as long as the Palms, and several of them two feet in diameter. Under the broad and arching foliage of these Palms and Ferns and Cycads, of which there are some twenty-seven species and varieties, the visitor walks as if in the dusk of a tropical forest, while at the bases of the stems are masses of rare Ferns and other shade-loving tropical plants.

On either side, and opening into the Palm-house, are long ranges filled with stock plants in wonderful variety and in such abundance as one rarely sees. One house is filled with Kentia Belmoriana, another with K. Fosteriana, a third with Areca lutescens, and a fourth with Cocos Wedelliana. Another still contains Marantas, Crotons and other stove foliage-plants, while the next gives space to nothing but Anthuriums, and the one beyond shows Alocasias, Nepenthes and the like. The house of Dracænas was conspicuous not only for the great number of well-grown plants it contained, but for the magnificent Stag-horn Ferns which ornamented its entrance, one variety in particular with a splendid shield being one of the most attractive plants in the whole collection. No one realizes the full decorative value of the Auracaria until a mass of it 200 feet long is seen; and beautiful as is a specimen plant of Adiantum Farleyense, a long house with both the centre and side benches completely covered with its soft foliage, gives one a new idea of its delicate and airy grace.

Of course, there are Orchids in bewildering profusion in the three ranges, each 500 feet in length. One is not surprised to learn that there are 2,800 seedling Cypripediums alone, and that the house which is filled with Cypripediums for flowering is 130 feet long. Just now the rare and beautiful little C. Fairreanum is in flower, and it seems to have a particularly tender place in Mr. Manda's regard, not only for its beauty, but because it seems gradually to be dwindling out of cultivation. He is fortunate in having among his prizes in bloom a hybrid between this species and C. Spicerianum. Of the other Orchids in flower which cannot be omitted are two distinct and charming varieties of Vanda Sanderiana, many fine examples of Vanda cerulea and the rare and beautiful hybrid Cattleya Exoniensis.

New York. *X.*

Periodical Literature.

An interesting article in the October *Bulletin of the Torrey Botanical Club*, written by Mr. William T. Davis, describes the discovery on Staten Island of what he believes to be a new hybrid Oak. Near Watchogue, he says, grow numbers of the Black Scrub Oak (Quercus ilicifolia), associated, especially in the drier situations, with many Black Jack Oaks (Q. nigra). These species are easily distinguishable. Q. ilicifolia is not usually a tree, but a shrub. But, accompanying many normal specimens of both species, Mr. Davis noted many others, which, "when taken together, form a series leading from one species to the other, and apparently are hybrids resulting from the cross-fertilization of the two. Though these trees vary considerably, individually they resemble Q. nigra in being erect and rigid in growth, in their short, abruptly tapering branches, and in having the leaves rusty pubescent beneath. They resemble Q. ilicifolia in being small, in their smooth, light-colored bark, and in the retention of their dried catkins in abundance throughout the summer. . . . One of the trees that bears the greatest resemblance to Q. nigra is erect in growth and about eight feet high, and the leaves vary in shape from the nigra form to that of ilicifolia. They are more rusty pubescent beneath than those of Q. nigra, and the tree has a lighter appearance, owing principally to the color of its bark. Only two or three partly broken cups of last year's acorns remained on its branches, for it bore no fruit this year, but it retained its dried catkins in abundance.

"Another tree, that is about six feet tall and has the under surface of the leaves rusty pubescent, bore two abortive acorns this year, but retained its catkins. Still another tree, near by, is erect, about six feet tall, and has the leaves whiter beneath than the last. It bore no acorns, but, like the other trees, retained its catkins. None of the remaining trees so far discovered, the tallest of which is fourteen feet high, bore any fruit at all this year.

"At the other end of the island, at Rossville and Tottenville, Q. nigra grows abundantly, but Q. ilicifolia is absent, and a diligent search at these places resulted in the discovery of no such trees as those to be found at Watchogue."

In the list of hybrid Oaks contained in the last edition of Gray's *Manual*, two hybrids are described and named of which Q. nigra is a parent, and one of which is the offspring of Q. ilicifolia. But no hybrid between these two species is noted, and, therefore, as it is recognizable enough to deserve a name, Mr. Davis proposes to call it Quercus Brittoni, "after Dr. N. L. Britton, who was born on the island, and who, with Mr. Arthur Hollick, has done so much in making known its flora."

Notes.

We rarely hear the Forsythias spoken of on account of the beauty of their autumn coloring, yet these shrubs, although they begin to turn early to a rich chocolate-brown, hold their

leaves for a long time, and are still very beautiful, especially as the sun shines through them, when they show a very deep crimson tint.

At the Chicago Fair, Apache County, Arizona, will exhibit a collection of petrified woods from the famous forest-region along the Little Colorado River. Specimens of these singularly perfect petrifactions, some of them enormously large, have been seen in this city, but will doubtless be new to very many visitors at Chicago.

The Chamber of Commerce of the twin cities of Winston and Salem, in North Carolina, at its last meeting passed a resolution recommending the Legislature of the state to acquire and preserve a portion of its forest-area, and urging upon the General Government the desirability and importance of a national park in the southern Alleghanies.

It is not usual to find Sweet Peas blooming in the open air on the 1st of November, but if the flowers are cut off every day the plants will always bloom until severe frosts. The unusually warm autumn has prolonged the season this year, and within a few days we have seen a beautiful bunch of these flowers picked from a row which had been blooming since July.

The proprietors of *Harper's Magazine*, in their announcements for the coming year, promise some illustrated studies of the old gardens of Italy, by Mr. Charles A. Platt, the well-known landscape-painter and etcher, besides other articles on "Our great pleasure-grounds in park and forest," while in another publication of the same firm Mrs. Candace Wheeler will write of "Color Effects in the Garden." This recognition of the fact that gardening is enough of a fine art to attract the pen and pencil of artists in other branches, and that it is a topic of sufficient popular interest to command an important place in leading periodicals devoted to general subjects, is certainly a gratifying one to all who love gardens.

Mr. E. H. Forbush, director of the field-work against the Gipsy Moth in Massachusetts, writes to Mr. Fernow, Chief of the Division of Forestry, to say that the insect-lime recommended by him (see GARDEN AND FOREST, vol. iv., p. 142) had been given a very thorough trial during the past two seasons. About four tons of the material have been used, and it was pronounced more useful than anything that the Commission has been able to secure or manufacture for the same purpose. The lime received from German manufacturers retained its freshness for a long time, and its only fault was that it hardened during cold storms and occasionally on cold nights, so that the insects could climb over it. If properly applied and watched it is very efficient, and seems more useful in woodlands than on street-trees, where the dust is continually flying.

Providence journals have recently stated that Neutakonkanut Hill will probably be bought by the city and reserved as a public pleasure-ground. The tract so called lies just outside the city limits on the Plainfield Pike. Part of it is level and covered thickly with woods, scattered among which are small farms, while another part is described as a "series of natural terraces, strewn with immense boulders, with here and there a giant Oak." From the highest point in this portion an extensive view of Providence may be had. From another elevation Fall River can be seen, and, in still a third direction, the wide and beautiful panorama of Narragansett Bay. A pond is also included within the limits of the indicated tract, and, as it thus seems particularly well adapted to its proposed purpose, its acquisition will doubtless be a matter of general rejoicing, especially among the large manufacturing population of the town, for, while Providence already possesses a number of small parks, it has as yet no large, varied and wooded tract suitable for popular refreshment on a generous scale.

Mr. F. V. Coville writes in a recent number of the *Bulletin of the Torrey Botanical Club* with regard to his rediscovery of a Rush (Juncus Cooperi), which was described as new by Dr. Engelmann in 1868 from a single specimen, without leaves or root-stock, collected seven years before by Dr. J. G. Cooper in San Bernardino County, California. It has since been known only through this single specimen, although Mr. Coville explains he has recently found another in the National Herbarium, falsely labeled Juncus compressus, and accredited to the Colorado Desert in California. In January, 1891, he tells that an expedition sent out by the United States Department of Agriculture, entered Death Valley and encamped at Bennett Wells. Near this camp, and in several other places in this same region, he found J. Cooperi in fruit, standing on the borders of a salt-marsh amid vegetation peculiar to this alkaline region, "in tufts sometimes composed of only a few stems, or occasionally attaining the extraordinary diameter of two metres." A full description of the plant, drawn up from these living specimens, accompanies Mr. Coville's account of its rediscovery.

About a year ago GARDEN AND FOREST told the story of the creation of Highland Park (see vol. iv., p. 553), which was secured for the old village of Jamaica, Long Island, by an organization of public-spirited women. One of the interesting features of the ceremonies of Columbus Day in Jamaica was planting memorial trees in this park under the auspices of the Linnean Club. Trees were planted in honor of Columbus and Isabella, of Mr. Brinkerhoff, who gave half the cost of the land in the park, besides one in honor of each of the original incorporators of the Park Association. During the exercises it was announced that Mr. Henry A. Van Allen had given an acre of ground which bordered on the pond, of which the association owns only a part. This donation is the first step toward obtaining control of the entire shore, and a "Van Allen tree" was very properly added to the collection. The trees were planted under the direction of Mr. Henry Hicks, of Westbury, Long Island, a graduate of the School of Horticulture in Cornell University, and since he took a special course in landscape-gardening there is reason to believe that the trees are not only carefully planted but properly selected and placed.

A French writer having stated that, so far as he knew, the Purple Beech had never been planted as an avenue-tree, the *Monthly Bulletin of the Horticultural Society of Mons* recently informed him that an avenue of Purple Beeches, still young but flourishing, exists in that part of the forest of Soignies, which lies near the Boistfort race-course. We may say, in our turn, that a fine avenue of large and well-developed Purple Beeches is a conspicuous feature of an old country-place near Boston, the trees varying in color from a true purple to a rich dusky bronze. Few persons will regret that avenues of this kind are infrequent. Green is nature's color, in the sense that it is the only color which she uses in large masses of foliage. The original Purple Beech was a "sport" from the common species. It was wise to propagate it for garden use, as a single bronze-colored or purple tree as beautiful in form as the Beech, used as an accent to relieve great expanses of green, may be advantageous in a diversified landscape-gardening scheme. But the presence of even two or three such trees can seriously disturb the repose and unity of a lawn or plantation; and an avenue of them, while appealing, by its conspicuousness and rarity to the wonder of some observers, can never be as appropriate or beautiful as an avenue of green trees of this or another species.

The monument to the memory of Audubon, which was projected for this city some time ago by the American Association of Science, is nearly completed and will be unveiled by the great naturalist's granddaughter before the first of December. It will stand in Trinity Cemetery, near the Audubon family vault, and will eventually face Audubon Avenue, as this street is to be cut through to 155th Street. The Audubon family once owned all the tract of land lying between the Hudson River, Tenth Avenue, 155th and 158th Streets, and a portion of it is now called Audubon Park, although it is not a public property, consisting of a group of villas, surrounded by more or less extensive grounds. Some contributions for the monument came from other states, but the major part of the money was raised in New York, largely by the exertions of Dr. Egleston, of the Columbia College School of Mines. It is composed, we are told, of a large square block of bluestone, bearing a relief-portrait of Audubon and various appropriate emblems. This is surmounted by a Celtic cross, nineteen feet high, carved with characteristic Celtic designs, in which basket-patterns, flowers, birds and animals are interwoven, and with Biblical inscriptions on the panels at its base. The scheme is evidently a good one, but one may doubt whether the execution of it will be as good, for the work has been done in a stone-yard, without the assistance of any artist whose name is familiar to the public.

Catalogues Received.

DAMMANN & Co., San Giovanni a Teduccio, near Naples, Italy; Flower and Vegetable Seeds, Seeds of Shrubs, Conifers, Palm and Fruit Trees, Bulbs.—E. HIPPARD, Youngstown, Ohio; Standard Ventilating Machinery, Standard Hose Mender.—WM. S. LITTLE, Rochester, N. Y.; Ornamental and Fruit Trees, Fruit-bearing and other Shrubs, Vines, Roses, etc.—HUGH LOW & Co., Clapton Nursery, London, N. E., England; Wholesale Trade-list of Orchids, Palms, Ferns, Shrubs, Trees, Roses and other Flowering Plants.—PITCHER & MANDA, United States Nurseries, Short Hills, N. J.; Select Plants for Artistic Decorations, Hardy Perennial and Herbaceous Plants for Fall Planting.